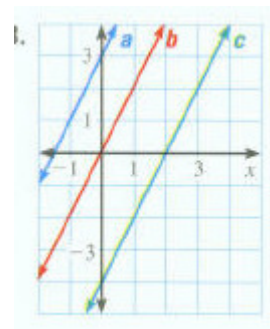


Chapter 5 Review

1. Write an equation of the line with slope -6 and the y -intercept $\left(0, \frac{3}{4}\right)$ in slope-intercept form.

2. Write the equation of each line in the graph to the right in slope-intercept form.

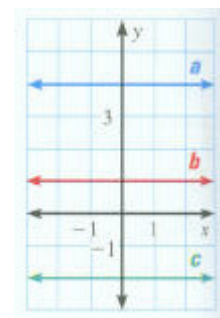


3. A rental company charges a flat fee of \$30 and an additional \$.25 per mile to rent a moving van.

- a. Write an equation to model the total charges y (in dollars) in terms of x , the number of miles driven.
- b. Complete the table below using the equation from part a.

Miles (x)	25	50	75	100
Cost (y)				

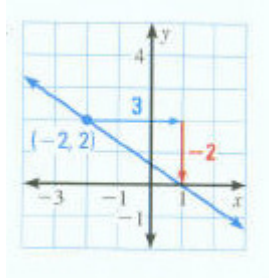
4. Write the equation of each line in the graph to the right in slope intercept form.



5. You are designing a calendar as a fund-raising project for your Biology Club. The cost of printing is \$500, plus \$2.50 per calendar.
- a. Write an equation to model the total cost C of printing x calendars.
- b. You sell each calendar for \$5.00. Write an equation to model the total income T for selling x calendars.
- c. Graph both equations in the same coordinate plane. Estimate the point at which the two lines intersect. Explain the significance of this point of intersection in the context of the real-life problem.
- d. You estimate the club can sell 200 calendars. Write an analysis of how effective this fundraising project will be for the club.

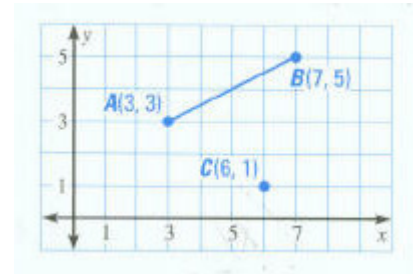
6. Write an equation of the line that passes through the point $(-3, 2)$ that has the slope $m = \frac{1}{3}$. Write the equation in slope-intercept form.

7. Write an equation of the line that is parallel to the line $y = \frac{2}{3}x - 2$ and passes through the point $(2, 1)$. Write an equation of the line shown in the graph to the right.



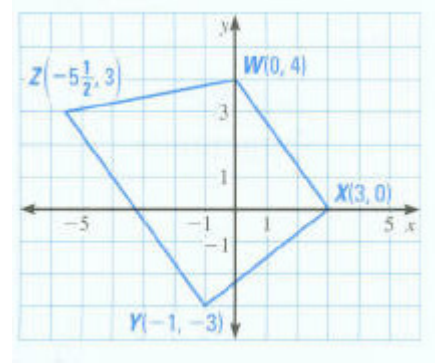
8. Write an equation of the line shown in the graph to the right.
9. At the start of your second year as a veterinary technician, you receive a raise of \$750. You expect to receive the same raise every year. Your total yearly salary after your first raise is \$18,000 per year.
- Write an equation that models your total salary s in terms of the number of years n since you started as a technician.
 - Calculate your yearly salary after six years as a veterinary technician.

10. \overline{AB} is part of a line with a slope of $\frac{1}{2}$. To begin to draw a parallelogram, you want to draw a line parallel to \overline{AB} through point C . Write an equation of the line. (see graph to the right)



11. Graph the points $(-1, -2)$ and $(2, 6)$ and draw a line through them. Write an equation in slope-intercept form of the line that passes through the points.
12. Graph the points $(5, -6)$ and $(5, -3)$ and draw a line through them. Write an equation in slope-intercept form of the line that passes through the points.
13. Graph the points $(-6, 2)$ and $(-4, 11)$ and draw a line through them. Write an equation in slope-intercept form of the line that passes through the points.
14. Write an equation in slope-intercept form of the line that passes through the points $\left(\frac{1}{4}, 2\right)$ and $\left(-5, \frac{2}{3}\right)$.
15. Write an equation of a line through $(4, 5)$ that is perpendicular to $y = \frac{1}{2}x + 3$.
16. Write an equation of a line through $(0, 2)$ that is perpendicular to $y = -4x + 6$.

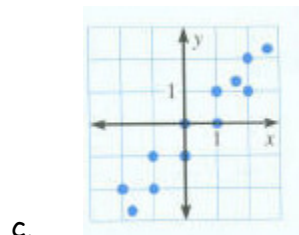
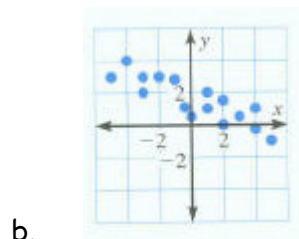
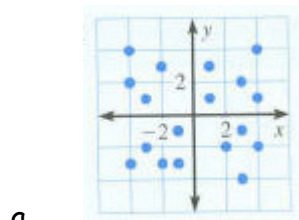
17. Use the graph at the right to answer the following questions.
- Find the perpendicular sides of the trapezoid $WXYZ$. How do you know mathematically that these sides are perpendicular?
 - Write an equation of the lines containing the perpendicular sides.
 - Write equations of the lines containing the two parallel sides. How do you know these sides are parallel?



18. Draw a scatter plot of the data in the table below. Draw a line that corresponds closely to the data and write an equation of the line.

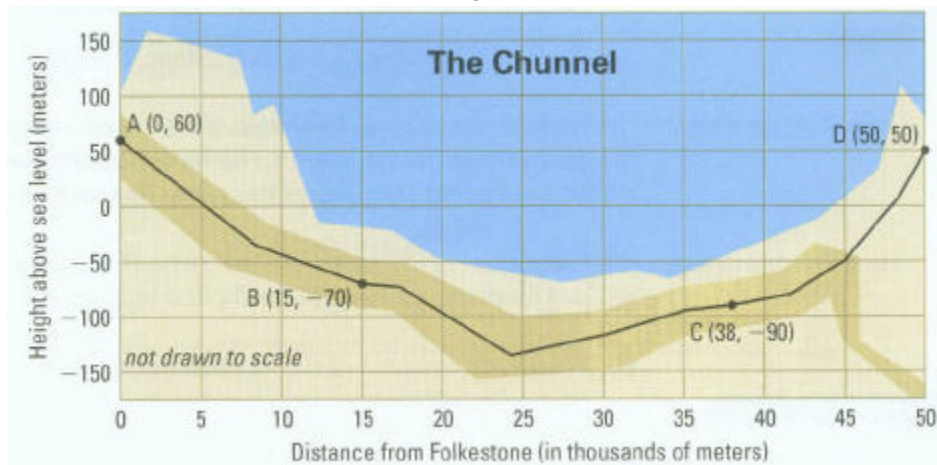
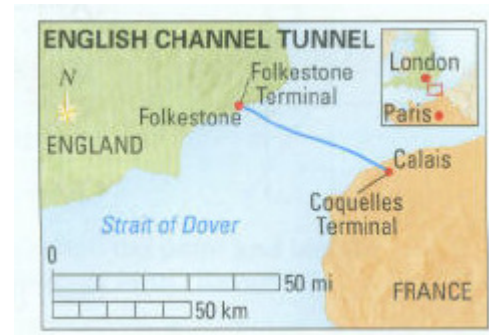
x	y
3.0	7.1
3.4	8.1
4.0	8.5
4.1	8.9
4.8	9.6
5.2	9.8

19. State whether x and y have a *positive correlation*, a *negative correlation*, or *relatively no correlation*.



20. Use the diagram of the Chunnel, a railroad tunnel built under the English Channel to answer the questions.

- Write an equation of the line from point A to point B .
What is the slope of the line?
- Write an equation of the line from point C to point D .
What is the slope of the line? Is the Chunnel steeper on the French side or on the English side?



21. As people grow older, the size of their pupils tends to get smaller. The average diameter (in millimeters) of one person's pupils is given in the table.

- Draw a scatter plot of the day diameters and another of the night diameters. Let x represent the person's age and let y represent pupil diameter.
- Find an equation of the line that closely fits the day and the night sets of data for pupil diameter.
- Do the two lines have the same slope? Explain your answer in the context of the real-life data.

Sample Pupil Diameters		
Age (years)	Day	Night
20	4.7	8.0
30	4.3	7.0
40	3.7	6.0
50	3.5	5.0
60	3.1	4.1
70	2.7	3.2
80	2.3	2.5

22. Write an equation in point-slope form of the line that passes through the points $(-2, -5)$ and $(7, -6)$.

23. Write an equation in point-slope form of the line that passes through the points $(4, -5)$ and $(-2, -7)$.

24. Write an equation in point-slope form of the line that passes through the points $(-3, -7)$ and $(-4, -8)$.
25. Write an equation in point-slope form of the line that passes through the point $(12, 2)$ and has the slope $m = -7$.
26. Write an equation in point-slope form of the line that passes through the point $(-3, 4)$ and has the slope $m = 6$.
27. Write an equation in point-slope form of the line that passes through the point $(8, -1)$ and has the slope $m = 0$.
28. Write the point-slope form of the equation of the line that passes through the point $(-3, -1)$ and has the slope $m = 4$. Then rewrite the equation in slope-intercept form.
29. Write the point-slope form of the equation of the line that passes through the point $(4, -2)$ and has the slope $m = \frac{1}{4}$. Then rewrite the equation in slope-intercept form.
30. You are going on a trip to the Natural History Museum. At 9:00 A.M., you leave for the museum, which is 120 miles away. At 10:15 A.M., you are 63 miles away from the museum.
- Write a linear equation that gives the distance d (in miles) from the museum in terms of the time t . Let t represent the number of minutes since 9:00 A.M.
 - Find the distance you are from the museum after you have traveled 2 hours.
 - According to your equation, when will you reach the museum?
31. Write the point-slope form of the equation of the line that passes through the two points $(1, 3)$ and $(2, 5)$.
32. Write the point-slope form of the equation of the line that passes through the two points $(-3, -4)$ and $(1, -1)$.
33. Write the point-slope form of the equation of the line that passes through the two points $(4, -2)$ and $(-9, 5)$.

34. Write the equation $4x - y - 7 = 0$ in standard form with integer coefficients.
35. Write the equation $y = -\frac{3}{4}x + \frac{5}{4}$ in standard form with integer coefficients.
36. Write an equation in standard form of the line that passes through the point $(-8, 3)$ and has the slope $m = 2$.
37. Write an equation in standard form of the line that passes through the point $(-2, 7)$ and has the slope $m = -4$.
38. Write an equation in standard form of the line that passes through the point $(7, 3)$ and has the slope $m = -2$.
39. Write an equation in standard form of the horizontal line and the vertical line that passes through the point $(10, -3)$.
40. You are in charge of buying prizes for a school contest. A one-strand rosette ribbon costs \$2.00 and a three-strand rosette ribbon costs \$3.00. You have \$10 to spend.
- Write an equation that represents the different numbers of one-strand and three-strand rosette ribbons that you can purchase.
 - What is the greatest number of students that can receive a ribbon?
 - What is least number of students that can receive a ribbon?
41. Use the table which shows the number of movie theater screens (in thousands) from 1975 to 1995.

Year	1975	1980	1985	1990	1995
Indoor screens (in thousands)	11	14	18	23	27
Outdoor screens (in thousands)	4	4	3	1	1

- Make a scatter plot of the number of indoor movie screens in terms of the year t . Let t represent the number of years since 1975.
- Make a scatter plot of the number of drive-in movie screens in terms of the year t . Let t represent the number of years since 1975.
- Which data are better modeled with a linear model?
- Write a linear model for the number of indoor movie screens.

- e. Use the linear model to estimate the number of indoor movie screens in 2005.
- f. Use the linear model to estimate the number of indoor movie screens in 1989.
Did you use *linear interpolation* or *linear extrapolation*?